

**NANOPHYLLIUM PYGMAEUM REDTENBACHER
(PHASMATODEA: PHYLLIIDAE: PHYLLIINAE), A
LEAF INSECT RECENTLY RECOGNIZED IN
AUSTRALIA**

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Abstract

A small leaf insect, *Nanophyllium pygmaeum* Redtenbacher, is recorded from rainforest in Australia for the first time. The species was originally described from Papua New Guinea. Notes on its biology, including culture in the laboratory, and its change in body form from nymph to adult are presented.

The 1986 Australian National Insect Collection expedition to Iron Range in northeastern Queensland yielded the first determinable Australian specimen of the leaf insect *Nanophyllium pygmaeum* Redtenbacher. The genus and species was described from Katau, New Guinea in 1907 in Brunner and Redtenbacher's classic phasmatid work and the Australian example agrees with the description and figures presented there. The male is smaller and more slender than most other leaf insects but readily identifiable as such by its peculiar legs and flanged abdomen (Figs 1, 2).

The first records of this genus from Australia were probably those of G.B. Monteith, who collected a series of nymphs from Iron Range in Feb. 1976. But his specimens died as nymphs and could only be recognised as species of Phylliinae. One of these specimens is preserved in the Queensland Museum.

A single specimen collected as a nymph by the author was found at 12° 44'S, 143° 14'E, 3km ENE of Mt Tozer, nr Iron Range National Park, northeastern Queensland, 29 June 1986. The specimen matured on 25 December 1986 and died on 19 January 1987. It was swept by hand net from an isolated small shrub about 1.5 m from the ground, a few metres from one of the many branches of the Claudie River. The nymph was approximately 10 mm long. In captivity the individual had a strong tendency to move upward and I suspect if its host shrub had been in contact with a larger tree, the insect would have been seen in higher vegetation. Intensive collecting over the following three weeks failed to yield a single additional specimen. Interestingly, this was approximately the same locality where Dr Monteith had collected his specimens.

The nymph was kept alive in the field by providing it with young leaves of its unidentified "host" plant. It was transported to Canberra, where it was offered the choice of a variety of plants but preferred the young leaves

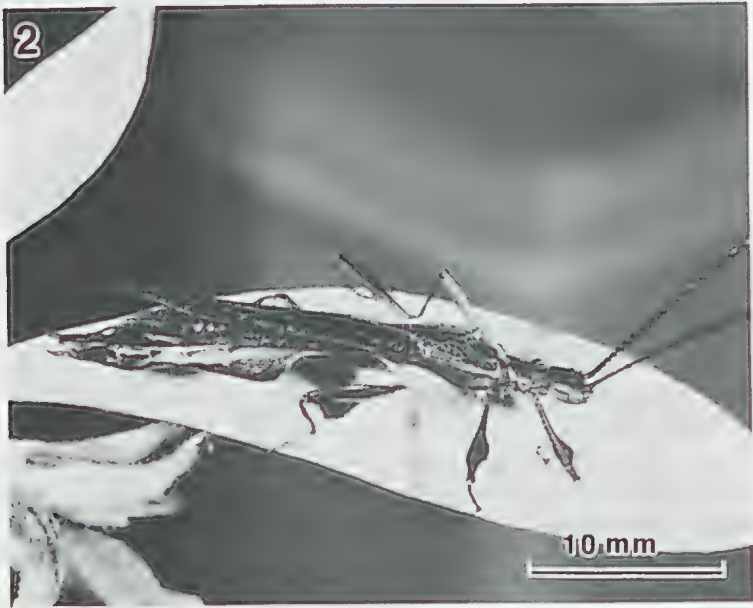


Fig. 1. Mid-instar nymph of *Nanophyllum pygmaeum* Redtenbacher. Note female-type characteristics of body shape and length of antennae.

Fig. 2. Adult male, same individual. Note change in characters noted above and decidedly slender appearance.

of *Pyracantha* sp. (Rosaceae). The nymph was kept in a plastic cylindrical cage with a wire screen top, with ample *Pyracantha* sp. foliage and water was provided. Temperature was maintained at 25°C and the lighting maintained on a 12 hour light, 12 hour dark regime. The food plants were positioned so that they came into contact with the top of the cage to prevent the nymph from inadvertently starving to death.

The nymph (Fig. 1) was thought initially to be a female. The broad, flat appearance, yellow green colour and very short antennae being typical of females of other phylline species. It moulted several times apparently at night, each time consuming its old exuvium. Prior to moulting, the insect became sluggish and listless and did not feed. When the adult finally appeared (Fig. 2) not only was it a very small phylline (30 mm) but it also seemed to change its appearance from male to female. The figures show the same individual, Fig. 1 at middle instar and Fig. 2 at adult illustrate the difference in body proportions, structure and antennal length.

The increase in number of antennal segments between nymph and adult and the difference in colour and pattern is also graphically portrayed.

The adult male lived for 27 days in the laboratory. Mr T. James (pers. comm.), convener of the Phasmatid Study Group based in England, notes that *Phyllium* spp. males live for only 2-3 weeks as adults; females live much longer. The adult male of *N. pygmaeum* became very active and attempted to fly which it did feebly when disturbed. The tegmina and wings are shining black with a bluish overcast similar to some Hymenoptera and it is my impression that the species may be a hymenopteran mimic. The adult fed very little and remained motionless during the day unless disturbed.

Drawing from his experience in breeding four species of the related genus *Phyllium*, Mr T. James informs that they produce non-adhesive eggs which are randomly broadcast by the females. Seemingly, they eventually land on the ground and if true with *N. pygmaeum*, this is the reason I was able to find the young nymph on an isolated sapling. In the related subfamily Necrosiinae, various species attach their eggs to stems or bury them in the ground (John *et al.* 1987).

References

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